

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Westfield
Westfield Executive Park
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Tel: (413)572-4000

*Reviewed for completeness
of parameters ordered:*

[Signature]
6/15/11

TestAmerica Job ID: 360-34011-1
Client Project/Site: Olin Chemical SemiAnnual Groundwater

For:
Olin Corporation
PO BOX 248
Charleston, Tennessee 37310-0248

Attn: Mr. James Cashwell

[Signature]

Authorized for release by:
06/09/2011 10:16:36 AM

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Results relate only to the items tested and the sample(s) as received by the laboratory. The test results in this report meet all 2003 NELAC requirements for accredited parameters, exceptions are noted in this report. Pursuant to NELAC, this report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.



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Case Narrative

Client: Olin Corporation
Project/Site: Olin Chemical SemiAnnual Groundwater

TestAmerica Job ID: 360-34011-1

Job ID: 360-34011-1

Laboratory: TestAmerica Westfield

Narrative

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 05/25/2011; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 1.2 C.

Note: All samples which require thermal preservation are considered acceptable if the arrival temperature is within 2 C of the required temperature or method specified range. For samples with a specified temperature of 4 C, samples with a temperature ranging from just above freezing temperature of water to 6 C shall be acceptable. Samples that are hand delivered immediately following collection may not meet these criteria, however they will be deemed acceptable according to NELAC standards, if there is evidence that the chilling process has begun, such as arrival on ice, etc.

DISSOLVED METALS

Samples OC-GW-CA1 (360-34011-1) and OC-GW-42S (360-34011-2) were analyzed for dissolved metals in accordance with EPA SW-846 Method 6010B. The samples were analyzed on 05/26/2011.

At the request of the client, an abbreviated/modified MCP analyte list was reported for this job.

No difficulties were encountered during the dissolved metals analyses.

All quality control parameters were within the acceptance limits.

ANIONS

Samples OC-GW-CA1 (360-34011-1) and OC-GW-42S (360-34011-2) were analyzed for anions in accordance with EPA Method 300.0. The samples were analyzed on 05/27/2011.

Samples OC-GW-CA1 (360-34011-1)[10X] and OC-GW-42S (360-34011-2)[10X] required dilution prior to analysis due to high target concentration. The reporting limits have been adjusted accordingly.

No difficulties were encountered during the anions analyses.

All quality control parameters were within the acceptance limits.

AMMONIA

Samples OC-GW-CA1 (360-34011-1) and OC-GW-42S (360-34011-2) were analyzed for ammonia in accordance with Lachat 107-06-1B. The samples were prepared on 06/01/2011 and analyzed on 06/07/2011.

No difficulties were encountered during the ammonia analyses.

All quality control parameters were within the acceptance limits.

SPECIFIC CONDUCTIVITY

Samples OC-GW-CA1 (360-34011-1) and OC-GW-42S (360-34011-2) were analyzed for specific conductivity in accordance with SM20 2510B. The samples were analyzed on 05/27/2011.

Case Narrative

Client: Olin Corporation
Project/Site: Olin Chemical SemiAnnual Groundwater

TestAmerica Job ID: 360-34011-1

Job ID: 360-34011-1 (Continued)

Laboratory: TestAmerica Westfield (Continued)

No difficulties were encountered during the conductivity analyses.

All quality control parameters were within the acceptance limits.

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MassDEP Analytical Protocol Certification Form

Laboratory Name: **TestAmerica Westfield** Project #: **360-34011-1**

Project Location: RTN:

This form provides certifications for the following data set: list Laboratory Sample ID Number(s):

360-34011-(1-2)

Matrices: ☒ Groundwater/Surface Water ☐ Soil/Sediment ☐ Drinking Water ☐ Air ☐ Other:

CAM Protocols (check all that apply below):

| | | | | | |
|--|--|---|--|--|---|
| 8260 VOC CAM II A <input type="checkbox"/> | 7470/7471 Hg CAM III B <input type="checkbox"/> | Mass DEP VPH CAM IV A <input type="checkbox"/> | 8081 Pesticides CAM V B <input type="checkbox"/> | 7196 Hex Cr CAM VI B <input type="checkbox"/> | Mass DEP APH CAM IX A <input type="checkbox"/> |
| 8270 SVOC CAM II B <input type="checkbox"/> | 7010 Metals CAM III C <input type="checkbox"/> | Mass DEP EPH CAM IV B <input type="checkbox"/> | 8151 Herbicides CAM V C <input type="checkbox"/> | 8330 Explosives CAM VIII A <input type="checkbox"/> | TO-15 VOC CAM IX B <input type="checkbox"/> |
| 6010 Metals CAM III A <input checked="" type="checkbox"/> | 6020 Metals CAM III D <input type="checkbox"/> | 8082 PCB CAM V A <input type="checkbox"/> | 9014 Total Cyanide/PAC CAM VI A <input type="checkbox"/> | 332.0 Perchlorate CAM VIII B <input type="checkbox"/> | |

Affirmative Responses to Questions A through F are required for "Presumptive Certainty" status

| | | |
|----------|---|--|
| A | Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding time. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| B | Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| C | Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| D | Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| E | a. VPH, EPH and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No |
| F | Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

| | | |
|----------|---|--|
| G | Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹ |
|----------|---|--|

Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WCS-07-350

| | | |
|----------|---|---|
| H | Were all QC performance standards specified in the CAM protocol(s) achieved? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| I | Were results reported for the complete analyte list specified in the selected CAM protocol(s) ? | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |

¹ All negative responses must be addressed in an attached laboratory narrative.

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, is accurate and complete.

Signature: 

Position: Laboratory Director

Printed Name: Steven C. Hartmann

Date: 6/9/11 10:12

This form has been electronically signed and approved

Detection Summary

Client: Olin Corporation
Project/Site: Olin Chemical SemiAnnual Groundwater

TestAmerica Job ID: 360-34011-1

Client Sample ID: OC-GW-CA1

Lab Sample ID: 360-34011-1

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|----------------------|--------|-----------|------|------|----------|---------|---|------------|-----------|
| Aluminum | 22 | J | 100 | 12 | ug/L | 1 | | 6010B | Dissolved |
| Chromium | 5.0 | | 5.0 | 0.65 | ug/L | 1 | | 6010B | Dissolved |
| Analyte | Result | Qualifier | RL | RL | Unit | Dil Fac | D | Method | Prep Type |
| Sulfate | 120 | | 20 | 20 | mg/L | 10 | | 300.0 | Total/NA |
| Chloride | 9.6 | | 1.0 | 1.0 | mg/L | 1 | | 300.0 | Total/NA |
| Ammonia | 3.7 | | 0.10 | 0.10 | mg/L | 1 | | L107-06-1B | Total/NA |
| Specific Conductance | 630 | | 1.0 | 1.0 | umhos/cm | 1 | | SM 2510B | Total/NA |

Client Sample ID: OC-GW-42S

Lab Sample ID: 360-34011-2

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|----------------------|--------|-----------|------|------|----------|---------|---|------------|-----------|
| Aluminum | 280 | | 100 | 12 | ug/L | 1 | | 6010B | Dissolved |
| Chromium | 5.9 | | 5.0 | 0.65 | ug/L | 1 | | 6010B | Dissolved |
| Analyte | Result | Qualifier | RL | RL | Unit | Dil Fac | D | Method | Prep Type |
| Sulfate | 7.6 | | 2.0 | 2.0 | mg/L | 1 | | 300.0 | Total/NA |
| Chloride | 85 | | 10 | 10 | mg/L | 10 | | 300.0 | Total/NA |
| Ammonia | 2.2 | | 0.10 | 0.10 | mg/L | 1 | | L107-06-1B | Total/NA |
| Specific Conductance | 400 | | 1.0 | 1.0 | umhos/cm | 1 | | SM 2510B | Total/NA |

Method Summary

Client: Olin Corporation
Project/Site: Olin Chemical SemiAnnual Groundwater

TestAmerica Job ID: 360-34011-1

| Method | Method Description | Protocol | Laboratory |
|------------|------------------------------------|-----------|------------|
| 6010B | Dissolved Metals | SW846 | TAL WFD |
| 300.0 | Chloride & Sulfate | 40CFR136A | TAL WFD |
| L107-06-1B | Nitrogen Ammonia | LACHAT | TAL WFD |
| SM 2510B | Conductivity, Specific Conductance | SM | TAL WFD |

Protocol References:

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.

LACHAT = LACHAT

SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL WFD = TestAmerica Westfield, Westfield Executive Park, 53 Southampton Road, Westfield, MA 01085, TEL (413)572-4000

Sample Summary

Client: Olin Corporation

TestAmerica Job ID: 360-34011-1

Project/Site: Olin Chemical SemiAnnual Groundwater

| Lab Sample ID | Client Sample ID | Matrix | Collected | Received |
|---------------|------------------|--------|----------------|----------------|
| 360-34011-1 | OC-GW-CA1 | Water | 05/19/11 09:25 | 05/25/11 10:10 |
| 360-34011-2 | OC-GW-42S | Water | 05/23/11 16:45 | 05/25/11 10:10 |

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Client Sample Results

Client: Olin Corporation
Project/Site: Olin Chemical SemiAnnual Groundwater

TestAmerica Job ID: 360-34011-1

Method: 6010B - Dissolved Metals - Dissolved

Client Sample ID: OC-GW-CA1

Date Collected: 05/19/11 09:25

Date Received: 05/25/11 10:10

Lab Sample ID: 360-34011-1

Matrix: Water

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|----------|--------|-----------|-----|------|------|---|----------|----------------|---------|
| Aluminum | 22 | J | 100 | 12 | ug/L | | | 05/26/11 17:54 | 1 |
| Chromium | 5.0 | | 5.0 | 0.65 | ug/L | | | 05/26/11 17:54 | 1 |

Client Sample ID: OC-GW-42S

Date Collected: 05/23/11 16:45

Date Received: 05/25/11 10:10

Lab Sample ID: 360-34011-2

Matrix: Water

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|----------|--------|-----------|-----|------|------|---|----------|----------------|---------|
| Aluminum | 280 | | 100 | 12 | ug/L | | | 05/26/11 17:57 | 1 |
| Chromium | 5.9 | | 5.0 | 0.65 | ug/L | | | 05/26/11 17:57 | 1 |

Client Sample Results

Client: Olin Corporation
Project/Site: Olin Chemical SemiAnnual Groundwater

TestAmerica Job ID: 360-34011-1

General Chemistry

Client Sample ID: OC-GW-CA1

Date Collected: 05/19/11 09:25

Date Received: 05/25/11 10:10

Lab Sample ID: 360-34011-1

Matrix: Water

| Analyte | Result | Qualifier | RL | RL | Unit | D | Prepared | Analyzed | Dil Fac |
|----------------------|--------|-----------|------|------|----------|---|----------------|----------------|---------|
| Sulfate | 120 | | 20 | 20 | mg/L | | | 05/27/11 20:36 | 10 |
| Chloride | 9.6 | | 1.0 | 1.0 | mg/L | | | 05/27/11 20:21 | 1 |
| Ammonia | 3.7 | | 0.10 | 0.10 | mg/L | | 06/01/11 14:37 | 06/07/11 15:20 | 1 |
| Specific Conductance | 630 | | 1.0 | 1.0 | umhos/cm | | | 05/27/11 08:30 | 1 |

Client Sample ID: OC-GW-42S

Date Collected: 05/23/11 16:45

Date Received: 05/25/11 10:10

Lab Sample ID: 360-34011-2

Matrix: Water

| Analyte | Result | Qualifier | RL | RL | Unit | D | Prepared | Analyzed | Dil Fac |
|----------------------|--------|-----------|------|------|----------|---|----------------|----------------|---------|
| Sulfate | 7.6 | | 2.0 | 2.0 | mg/L | | | 05/27/11 20:52 | 1 |
| Chloride | 85 | | 10 | 10 | mg/L | | | 05/27/11 21:07 | 10 |
| Ammonia | 2.2 | | 0.10 | 0.10 | mg/L | | 06/01/11 14:37 | 06/07/11 15:21 | 1 |
| Specific Conductance | 400 | | 1.0 | 1.0 | umhos/cm | | | 05/27/11 08:30 | 1 |

Definitions/Glossary

Client: Olin Corporation
Project/Site: Olin Chemical SemiAnnual Groundwater

TestAmerica Job ID: 360-34011-1

Qualifiers

Metals

| Qualifier | Qualifier Description |
|-----------|--|
| J | Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value. |

Glossary

| Abbreviation | These commonly used abbreviations may or may not be present in this report. |
|----------------|---|
| ☼ | Listed under the "D" column to designate that the result is reported on a dry weight basis. |
| EPA | United States Environmental Protection Agency |
| ND | Not Detected above the reporting level. |
| MDL | Method Detection Limit |
| RL | Reporting Limit |
| RE, RE1 (etc.) | Indicates a Re-extraction or Reanalysis of the sample. |
| %R | Percent Recovery |
| RPD | Relative Percent Difference, a measure of the relative difference between two points. |

QC Association Summary

Client: Olin Corporation
Project/Site: Olin Chemical SemiAnnual Groundwater

TestAmerica Job ID: 360-34011-1

Metals

Analysis Batch: 74297

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|------------------|------------------------|-----------|--------|--------|------------|
| LCS 360-74297/1 | Lab Control Sample | Total/NA | Water | 6010B | |
| MB 360-74297/2 | Method Blank | Total/NA | Water | 6010B | |
| LCSD 360-74297/5 | Lab Control Sample Dup | Total/NA | Water | 6010B | |
| 360-34011-1 | OC-GW-CA1 | Dissolved | Water | 6010B | |
| 360-34011-2 | OC-GW-42S | Dissolved | Water | 6010B | |

General Chemistry

Analysis Batch: 74320

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|-----------------|--------------------|-----------|--------|----------|------------|
| MB 360-74320/1 | Method Blank | Total/NA | Water | SM 2510B | |
| LCS 360-74320/2 | Lab Control Sample | Total/NA | Water | SM 2510B | |
| 360-34011-1 | OC-GW-CA1 | Total/NA | Water | SM 2510B | |
| 360-34011-1 DU | OC-GW-CA1 | Total/NA | Water | SM 2510B | |
| 360-34011-2 | OC-GW-42S | Total/NA | Water | SM 2510B | |

Analysis Batch: 74418

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|-----------------|--------------------|-----------|--------|--------|------------|
| MB 360-74418/3 | Method Blank | Total/NA | Water | 300.0 | |
| LCS 360-74418/4 | Lab Control Sample | Total/NA | Water | 300.0 | |
| 360-34011-1 | OC-GW-CA1 | Total/NA | Water | 300.0 | |
| 360-34011-1 | OC-GW-CA1 | Total/NA | Water | 300.0 | |
| 360-34011-2 | OC-GW-42S | Total/NA | Water | 300.0 | |
| 360-34011-2 | OC-GW-42S | Total/NA | Water | 300.0 | |

Prep Batch: 74484

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|-------------------|--------------------|-----------|--------|-----------------|------------|
| MB 360-74484/1-A | Method Blank | Total/NA | Water | Distill/Ammonia | |
| LCS 360-74484/2-A | Lab Control Sample | Total/NA | Water | Distill/Ammonia | |
| 360-34011-1 | OC-GW-CA1 | Total/NA | Water | Distill/Ammonia | |
| 360-34011-2 | OC-GW-42S | Total/NA | Water | Distill/Ammonia | |

Analysis Batch: 74585

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|-------------------|--------------------|-----------|--------|------------|------------|
| LCS 360-74484/2-A | Lab Control Sample | Total/NA | Water | L107-06-1B | 74484 |

Analysis Batch: 74846

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|------------------|------------------|-----------|--------|------------|------------|
| MB 360-74484/1-A | Method Blank | Total/NA | Water | L107-06-1B | 74484 |
| 360-34011-1 | OC-GW-CA1 | Total/NA | Water | L107-06-1B | 74484 |
| 360-34011-2 | OC-GW-42S | Total/NA | Water | L107-06-1B | 74484 |

QC Sample Results

Client: Olin Corporation
Project/Site: Olin Chemical SemiAnnual Groundwater

TestAmerica Job ID: 360-34011-1

Method: 6010B - Dissolved Metals

Lab Sample ID: MB 360-74297/2

Matrix: Water

Analysis Batch: 74297

Client Sample ID: Method Blank

Prep Type: Total/NA

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|----------|-----------|--------------|-----|------|------|---|----------|----------------|---------|
| Aluminum | ND | | 100 | 12 | ug/L | | | 05/26/11 16:30 | 1 |
| Chromium | ND | | 5.0 | 0.65 | ug/L | | | 05/26/11 16:30 | 1 |

Lab Sample ID: LCS 360-74297/1

Matrix: Water

Analysis Batch: 74297

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | % Rec | % Rec. Limits |
|----------|-------------|------------|---------------|------|---|-------|---------------|
| Aluminum | 5000 | 5250 | | ug/L | | 105 | 80 - 120 |
| Chromium | 1000 | 1050 | | ug/L | | 105 | 80 - 120 |

Lab Sample ID: LCSD 360-74297/5

Matrix: Water

Analysis Batch: 74297

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

| Analyte | Spike Added | LCSD Result | LCSD Qualifier | Unit | D | % Rec | % Rec. Limits | RPD | RPD Limit |
|----------|-------------|-------------|----------------|------|---|-------|---------------|-----|-----------|
| Aluminum | 5000 | 5160 | | ug/L | | 103 | 80 - 120 | 2 | 20 |
| Chromium | 1000 | 1030 | | ug/L | | 103 | 80 - 120 | 2 | 20 |

Method: 300.0 - Chloride & Sulfate

Lab Sample ID: MB 360-74418/3

Matrix: Water

Analysis Batch: 74418

Client Sample ID: Method Blank

Prep Type: Total/NA

| Analyte | MB Result | MB Qualifier | RL | RL | Unit | D | Prepared | Analyzed | Dil Fac |
|----------|-----------|--------------|-----|-----|------|---|----------|----------------|---------|
| Sulfate | ND | | 2.0 | 2.0 | mg/L | | | 05/27/11 15:49 | 1 |
| Chloride | ND | | 1.0 | 1.0 | mg/L | | | 05/27/11 15:49 | 1 |

Lab Sample ID: LCS 360-74418/4

Matrix: Water

Analysis Batch: 74418

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | % Rec | % Rec. Limits |
|----------|-------------|------------|---------------|------|---|-------|---------------|
| Sulfate | 80.0 | 81.6 | | mg/L | | 102 | 85 - 115 |
| Chloride | 40.0 | 40.8 | | mg/L | | 102 | 85 - 115 |

Method: L107-06-1B - Nitrogen Ammonia

Lab Sample ID: MB 360-74484/1-A

Matrix: Water

Analysis Batch: 74846

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 74484

| Analyte | MB Result | MB Qualifier | RL | RL | Unit | D | Prepared | Analyzed | Dil Fac |
|---------|-----------|--------------|------|------|------|---|----------------|----------------|---------|
| Ammonia | ND | | 0.10 | 0.10 | mg/L | | 06/01/11 14:37 | 06/07/11 14:40 | 1 |

QC Sample Results

Client: Olin Corporation
Project/Site: Olin Chemical SemiAnnual Groundwater

TestAmerica Job ID: 360-34011-1

Method: L107-06-1B - Nitrogen Ammonia (Continued)

Lab Sample ID: LCS 360-74484/2-A

Matrix: Water

Analysis Batch: 74585

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 74484

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | % Rec | % Rec. Limits |
|---------|-------------|------------|---------------|------|---|-------|---------------|
| Ammonia | 10.0 | 9.91 | | mg/L | | 99 | 90 - 110 |

Method: SM 2510B - Conductivity, Specific Conductance

Lab Sample ID: MB 360-74320/1

Matrix: Water

Analysis Batch: 74320

Client Sample ID: Method Blank

Prep Type: Total/NA

| Analyte | MB Result | MB Qualifier | RL | RL | Unit | D | Prepared | Analyzed | Dil Fac |
|----------------------|-----------|--------------|-----|-----|----------|---|----------|----------------|---------|
| Specific Conductance | ND | | 1.0 | 1.0 | umhos/cm | | | 05/27/11 08:30 | 1 |

Lab Sample ID: LCS 360-74320/2

Matrix: Water

Analysis Batch: 74320

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | % Rec | % Rec. Limits |
|----------------------|-------------|------------|---------------|----------|---|-------|---------------|
| Specific Conductance | 1410 | 1390 | | umhos/cm | | 99 | 85 - 115 |

Lab Sample ID: 360-34011-1 DU

Matrix: Water

Analysis Batch: 74320

Client Sample ID: OC-GW-CA1

Prep Type: Total/NA

| Analyte | Sample Result | Sample Qualifier | DU Result | DU Qualifier | Unit | D | RPD | RPD Limit |
|----------------------|---------------|------------------|-----------|--------------|----------|---|-----|-----------|
| Specific Conductance | 630 | | 621 | | umhos/cm | | 2 | 20 |

DILUTION LOGS

Analytical Dilution Preparation Log

Date: 5-27-11

| Analyst Initials | Date | Method | LIMS Sample ID | Rpt'd Dil. | Sample Aliquot 1 | Units | Final Volume 1 | Units | Serial Dilution | | | | Comments |
|------------------|---------|--------|----------------|------------|------------------|-------|----------------|-------|------------------|-------|----------------|-------|--------------------|
| | | | | | | | | | Sample Aliquot 2 | Units | Final Volume 2 | Units | |
| Rue | 5-27-11 | 300x | 34613H13 | 600x | 100 | µL | 10 | mL | 500 | µL | 10 | mL | Sample pH > 12 |
| | | | 34013H15 | 10x | 1 | mL | 10 | mL | | | | | |
| | | | | 50x | 200 | µL | 10 | mL | | | | | |
| | | | | 200x | 1 | mL | 10 | mL | 500 | µL | 10 | mL | |
| | | | 34013K17 | 10x | 1 | mL | 10 | mL | | | | | |
| | | | 34013H19 | 200x | 1 | mL | 10 | mL | 500 | µL | 10 | mL | |
| | | | | 500x | 1 | mL | 10 | mL | 200 | µL | 10 | mL | |
| | | | 34013H10 | 200x | 1 | mL | 10 | mL | 500 | µL | 10 | mL | |
| | | | 34011C1 | 10x | 1 | µL | 10 | µL | | | | | |
| | | | 34081A1 | 10x | 1 | mL | 10 | mL | | | | | |
| | | | | 50x | 200 | µL | 10 | mL | | | | | pH > 11 for sample |
| | | | | | | | | | | | | | |
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entries completed by day [new page each day]

0149

Lab Chronicle

Client: Olin Corporation
Project/Site: Olin Chemical SemiAnnual Groundwater

TestAmerica Job ID: 360-34011-1

Client Sample ID: OC-GW-CA1

Date Collected: 05/19/11 09:25

Date Received: 05/25/11 10:10

Lab Sample ID: 360-34011-1

Matrix: Water

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared Or Analyzed | Analyst | Lab |
|-----------|------------|-----------------|-----|-----------------|--------------|----------------------|---------|---------|
| Dissolved | Analysis | 6010B | | 1 | 74297 | 05/26/11 17:54 | TJS | TAL WFD |
| Total/NA | Analysis | SM 2510B | | 1 | 74320 | 05/27/11 08:30 | AMS | TAL WFD |
| Total/NA | Analysis | 300.0 | | 1 | 74418 | 05/27/11 20:21 | RWE | TAL WFD |
| Total/NA | Analysis | 300.0 | | 10 | 74418 | 05/27/11 20:36 | RWE | TAL WFD |
| Total/NA | Prep | Distill/Ammonia | | | 74484 | 06/01/11 14:37 | RWE | TAL WFD |
| Total/NA | Analysis | L107-06-1B | | 1 | 74846 | 06/07/11 15:20 | TJS | TAL WFD |

Client Sample ID: OC-GW-42S

Date Collected: 05/23/11 16:45

Date Received: 05/25/11 10:10

Lab Sample ID: 360-34011-2

Matrix: Water

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared Or Analyzed | Analyst | Lab |
|-----------|------------|-----------------|-----|-----------------|--------------|----------------------|---------|---------|
| Dissolved | Analysis | 6010B | | 1 | 74297 | 05/26/11 17:57 | TJS | TAL WFD |
| Total/NA | Analysis | SM 2510B | | 1 | 74320 | 05/27/11 08:30 | AMS | TAL WFD |
| Total/NA | Analysis | 300.0 | | 1 | 74418 | 05/27/11 20:52 | RWE | TAL WFD |
| Total/NA | Analysis | 300.0 | | 10 | 74418 | 05/27/11 21:07 | RWE | TAL WFD |
| Total/NA | Prep | Distill/Ammonia | | | 74484 | 06/01/11 14:37 | RWE | TAL WFD |
| Total/NA | Analysis | L107-06-1B | | 1 | 74846 | 06/07/11 15:21 | TJS | TAL WFD |

Laboratory References:

TAL WFD = TestAmerica Westfield, Westfield Executive Park, 53 Southampton Road, Westfield, MA 01085, TEL (413)572-4000

Certification Summary

Client: Olin Corporation

TestAmerica Job ID: 360-34011-1

Project/Site: Olin Chemical SemiAnnual Groundwater

| Laboratory | Authority | Program | EPA Region | Certification ID |
|-----------------------|----------------|---------------------|------------|------------------|
| TestAmerica Westfield | Connecticut | State Program | 1 | PH-0494 |
| TestAmerica Westfield | Florida | NELAC | 4 | E87912 |
| TestAmerica Westfield | Maine | State Program | 1 | MA00014 |
| TestAmerica Westfield | Massachusetts | State Program | 1 | M-MA014 |
| TestAmerica Westfield | New Hampshire | NELAC | 1 | 2539 |
| TestAmerica Westfield | New Jersey | NELAC | 2 | MA008 |
| TestAmerica Westfield | New York | NELAC | 2 | 10843 |
| TestAmerica Westfield | North Carolina | North Carolina DENR | 4 | 647 |
| TestAmerica Westfield | Rhode Island | State Program | 1 | LAO00057 |
| TestAmerica Westfield | Vermont | State Program | 1 | VT-10843 |

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

Login Sample Receipt Checklist

Client: Olin Corporation

Job Number: 360-34011-1

Login Number: 34011

List Source: TestAmerica Westfield

List Number: 1

Creator: Ard, Vanessa L

| Question | Answer | Comment |
|--|--------|---------|
| Radioactivity either was not measured or, if measured, is at or below background | N/A | |
| The cooler's custody seal, if present, is intact. | N/A | |
| The cooler or samples do not appear to have been compromised or tampered with. | True | |
| Samples were received on ice. | True | |
| Cooler Temperature is acceptable. | True | |
| Cooler Temperature is recorded. | True | |
| COC is present. | True | |
| COC is filled out in ink and legible. | True | |
| COC is filled out with all pertinent information. | True | |
| Is the Field Sampler's name present on COC? | True | |
| There are no discrepancies between the sample IDs on the containers and the COC. | True | |
| Samples are received within Holding Time. | True | |
| Sample containers have legible labels. | True | |
| Containers are not broken or leaking. | True | |
| Sample collection date/times are provided. | True | |
| Appropriate sample containers are used. | True | |
| Sample bottles are completely filled. | True | |
| Sample Preservation Verified. | True | |
| There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs | True | |
| VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter. | N/A | |
| Multiphasic samples are not present. | True | |
| Samples do not require splitting or compositing. | True | |
| Residual Chlorine Checked. | N/A | |

Chain of Custody Record

| | | | | | |
|---|--|--|---|---|--|
| Client Information Client Contact: James Cashwell Company: Olin Corporation Address: 51 Eames street City: Wilmington State: MA, Zip: 01887 Phone: 978 658 6121 Email: | | Lab PM: Mason, Becky C E-Mail: becky.mason@testamericainc.com Phone: 978 658 6121 | | Carrier Tracking No(s): Page: 1 of 2 Job # 310-34011 | |
| Due Date Requested: TAT Requested (days): PO #: REW10013 WO #: Project #: 36001816 SOW#: | | Analysis Requested Total Number of containers: | | | |
| Sample Identification OC-GW-CA1 OC-GW-425 | | Sample Date 5-19-11 5-23-11 | Sample Time 9:35 1645 | Sample Type G G | Matrix (W=water, S=solid, O=organic) Water Water Water Water Water Water Water Water Water Water Water |
| Preservation Code: OC-GW-CA1 OC-GW-425 | | Field Filled Sample (Yes or No) LACH_107_06_1_B - Ammonia 6010B - Field Filled Al/Cr 2610B, 300.0, 28D Cl/SO4 | Perform MS/MSD (Yes or No) S D N | Special Instructions/Note: MCP MCP MCP MCP MCP MCP MCP MCP MCP MCP MCP | Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - H2SO4 H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other: M - Hexane N - None O - AshNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - ph 4-5 Z - other (specify) |
| Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological | | | | | |
| Deliverable Requested: I, II, III, IV, Other (specify) | | | | | |
| Empty Kit Relinquished by: | | | | | |
| Relinquished by: <i>High Hanger</i> | | Date/Time: 5/24/11 1540 | | Company: | |
| Relinquished by: <i>M. C.</i> | | Date/Time: 5/24/11 1700 | | Company: | |
| Relinquished by: | | Date/Time: | | Company: | |
| Custody Seals Intact Yes A No | | Custody Seal No.: | | Cooler Temperature(s) °C and Other: | |